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Predictors of psychological adjustment after bereavement

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ABSTRACT

Background: The impact of spousal bereavement on mental health varies among the widowed. More information is needed on factors influencing bereavement outcome.

Method: We conducted a cross-sectional study on a sample of 216 widowed individuals. Initial non-response was high, with only 8% of all approached persons participating in the study. The influence of demographic and psychosocial predictors on four general outcome measures (depression, anxiety, somatization, and quality of life) and one loss-related outcome (complicated grief) was studied by means of backward linear regression analysis. Further analyses were performed to explore the possibility of a buffer effect.

Results: Depressive symptomatology was best predicted by: age, duration of widowhood, perceived non-supportiveness, physical disorders, and mastery. The other outcome measures were predicted by the same predictors supplemented by gender and education. Mastery interacted with the number of physical disorders while perceived social support interacted with duration of widowhood and age.

Conclusions: Enhancement of mastery should probably be one of the components of effective support for widowed individuals most vulnerable to psychiatric complications. The widowed could furthermore benefit from social support. Obviously, these suggestions need to be further examined in longitudinal research with more representative samples.

Keywords: anxiety, complicated grief, depression, mastery, social support, widow, widower

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Introduction

It is well established that spousal bereavement can lead to severe stress, associated with serious problems in mental health. Studies examining the prevalence and incidence of Mood and Anxiety Disorders complicating bereavement indicate that the prevalence of Major Depressive Disorder and several Anxiety Disorders is considerably elevated in widowed individuals, especially in the first year following the loss of a spouse (Onrust and Cuijpers, 2006). Furthermore, various studies demonstrate psychological problems, such as depressive symptomatology (Beem *et al.*, 2000; Harlow *et al.*, 1991; Stroebe and Stroebe, 1993; Zisook and Shuchter, 1991), anxiety (Beem *et al.*, 2000; Byrne and Raphael, 1997; Zisook and Shuchter, 1985), and complicated (or traumatic) grief (Barry *et al.*, 2002; Prigerson *et al.*, 1995a; Prigerson *et al.*, 1997), without presenting a diagnosis in accordance with the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) (American Psychiatric Association, 1994).

The impact of spousal bereavement on mental health diverges among the widowed. A substantial part of the widowed population experiences severe difficulties after the loss of their spouse, whereas others adjust relatively well. In order to assist the most fragile widows and widowers, we need to understand the risks and complications encountered by the widowed. In particular, we need to comprehend the effects of possible confounding variables, such as gender, age, prior psychiatric illnesses and psychosocial resources, in order to identify the population at risk. Effective support can then be developed and offered in order to prevent or treat accompanying psychopathologies (Reynolds *et al.*, 1999; Shear *et al.*, 2005).

The importance of gaining full understanding of risk factors and protective factors has been widely recognized, given the large amount of research which has been conducted to predict bereavement outcomes. Risk factors for poor bereavement outcomes have been examined extensively. The majority of studies focused on demographic features, such as gender (Stroebe *et al.*, 2001), age (Cotten, 1999), race (Fitzpatrick and Van Tran, 2002), education (Carey, 1979), and employment (Faletti *et al.*, 1989). Health-related variables, both physical (Feinson, 1982) and mental (Zisook and Shuchter, 1991) were also suggested several times. However, the impact of most commonly considered variables differed among the various studies.

Protective factors were less frequently examined, yet results were more consistent. Psychosocial resources, such as mastery or locus of control (Cotten, 1999; Landau,1995; Stroebe and Stroebe, 1993; Stroebe *et al.*, 1988) and perceived social support (Stroebe *et al.* 1996; Zisook *et al.*, 1987) were associated with better adjustment. However, little is known about the buffer effect of these protective factors.

Despite the large number of studies, we still lack clear perception of all factors influencing bereavement outcome. There are no systematic reviews or meta-analyses combining all suggested predictors, presumably due to the diversity of study designs, populations and explored variables. In addition, there are no empirical studies examining the combined influence and interaction of all suggested predictors. In order to refine understanding of psychiatric

complications in widowhood, we studied a comprehensive set of predictors of bereavement outcome in a large sample of widowed individuals. Inclusion of putative predictors was based on the vulnerability-stress theory (Brown and Harris, 1978) and relevant literature on risk indicators of poor bereavement outcomes. We expected that vulnerability to poor bereavement outcomes could be explained by the interaction of several risk indicators, such as gender and health, with personal control (mastery) and perceived social support.

Methods

Sample

The present study is part of a longitudinal study on the effects of a visiting service for older widowed individuals, using cross-sectional data from the first measurement. The sample was gathered using the register of births, deaths and marriages in 18 municipalities in the Netherlands. Letters were sent to all residents aged 55 and older, who had lost their spouse between 6 and 9 months earlier. The letters contained information about the study, an informed consent form, and a short screening questionnaire. In order to increase study participation, we used local media to inform the population and stimulate application. This media attention resulted in the recruitment of several participants who had either not yet received a letter because the death was more recent than 6 months, or who had reconsidered participation several months after they were first contacted.

To be eligible for the study, respondents had to meet three inclusion criteria: widowed during the past year, perceived non-supportiveness of their direct environment, and the absence of a full-blown mental disorder. In addition, respondents had to be capable of participating in a one-hour interview. During the one-year recruitment period, a total of 2,708 letters were sent to widowed individuals. In total, 308 widowed individuals (11.4%) returned the informed consent form. Initially, the response rate seemed rather low; however, a considerable part of the initial non-response is probably caused by individuals not meeting the inclusion criteria. For example, we were contacted by several older widowed individuals who did not fill in the application form because they declared themselves to have an excellent social network. Eligibility for the study was determined by a gradual screening process. At first, we defined perceived non-supportiveness according to the 'Loneliness Scale' (Jong-Gierveld and Tilburg, 1999), which was enclosed in the request for participation. Of the 308 widowed individuals agreeing to participate, 27 widows and widowers (8.8%) were excluded because they did not report non-supportiveness of their direct environment. All other candidates were contacted by phone for a screening interview, in order to ascertain their capability of engaging in a one-hour interview and the absence of a full-blown mental disorder. The presence or absence of full-blown mental disorders was measured according to the MINI, a short standardized diagnostic interview (Sheehan *et al.*, 1998). A total of 35 widowed individuals (11.4%) were excluded from the study, as they were

assessed as not being capable of participating in the study. Based on the MINI, a further 30 widows and widowers (9.7%) were excluded. Reasons for exclusion were: Major Depressive Disorder (n = 3; 1%), Dysthymic Disorder (n = 1; 0.3%), Panic Disorder with Agoraphobia (n = 1; 0.3%) Agoraphobia without history of Panic Disorder (n = 10; 3.2%), Substance-Induced Anxiety Disorder (n = 1; 0.3%), and, moderate to high suicide risk (n = 19; 6.2%). The remaining 216 widowed individuals (71% of those agreeing to participate; 8% of all persons approached) met inclusion criteria and participated in the first measurement of the study.

Measures

DEPENDENT VARIABLES

By means of an interview lasting about an hour, we examined four general outcome measures (depression, anxiety, somatization, and quality of life) and one loss-related outcome measures (traumatic or complicated grief).

Depression was assessed using the Center for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977), a frequently used self-report questionnaire with good psychometric properties (Bouma *et al.*, 1995). The CES-D consists of 20 items referring to depressive symptoms. Respondents were asked to indicate how often they had experienced each symptom during the past week, with response categories varying from 0 (hardly ever) to 3 (predominantly). Summation of the corresponding scores results in a total CES-D score ranging from 0–60.

Anxiety and somatization were measured with subscales (anxiety subscale and somatization subscale) from the Symptom Checklist (SCL-90) (Derogatis, 1977), a regularly used self-report questionnaire with high reliability and validity (Evers *et al.*, 2000). The Anxiety subscale refers to 10 symptoms corresponding to high levels of anxiety, such as trembling, heart pounding or racing and feeling fearful. The Somatization subscale consists of 12 items referring to somatic complaints often related to psychological problems or stress, such as headache, tightness of the chest and a lump in the throat. Respondents were asked to indicate how often they experienced each symptom during the past week. Responses were rated on a 5-point scale, ranging from 1 (not at all) to 5 (very often). For both subscales, a total score is calculated by summation of separate scores.

Quality of life was assed with the EuroQol (EQ-5D) (Brooks and EuroQol Group, 1996). The EuroQol is made up of five dimensions: mobility, self-care, usual activities, pain/discomfort, and, anxiety/depression. Respondents were asked to indicate for each dimension whether they experienced "no problems," "some problems," or "extreme problems." The separate scores were combined into the EQ-5D Index, a health status index, which is used to evaluate health status (QALY).

Traumatic or complicated grief was measured using the Inventory of Complicated Grief-revised (ICG-r) (Prigerson *et al.*, 1995b), a self-report

questionnaire with good psychometric properties (Boelen *et al.*, 2003). The ICG-r consists of 29 items referring to cognitions, emotions and behaviors that define traumatic or complicated grief, such as preoccupation with thoughts of the deceased, yearning and searching for the deceased and feeling stunned by the death. Respondents were asked to indicate how often they had experienced each symptom during the past month, using the response categories "never," "hardly ever," "sometimes," "regularly," or "always." The corresponding scores sum to a total score ranging from 29 to 145.

INDEPENDENT VARIABLES

In order to comprehend the effects of possible prognostic variables, we measured several demographic and psychosocial features of the respondents.

Demographic variables included age, gender (1 = female), nationality (1 = other than Dutch), low level of education (1 = no education or primary school), employment (1 = employed), and the amount of time elapsed since the death of the spouse (in months).

Prior mental health was assessed during the screening interview with the MINI (Sheehan *et al.*, 1998), recoded into a dichotome variable (1 = history of full-blown mental disorder).

Present physical health was measured using a list of frequently occurring disorders and disabilities among the elderly (Kriegsman *et al.*, 1996). Respondents were asked whether they suffered from (a) asthma, chronic bronchitis or chronic non specific lung disease; (b) serious heart condition or myocardial infarction; (c) peripheral vascular disease; (d) diabetes mellitus; (e) cerebrovascular vascular disease (including stroke); (f) incontinence; (g) articular degeneration or arthrosis; (h) inflammation of the joints or arthritis; (i) a tumor or cancer; and (j) other long-term illnesses or disabilities. Subsequently, a new variable was calculated representing the total number of disorders for each respondent.

Perceived non-supportiveness was measured during the screening interview with the 'Loneliness Scale' (Jong-Gierveld and Tilburg, 1999). Loneliness and perceived social support are slightly different constructs, although closely connected. Preferably, both constructs should be measured using separate measurements. However, there were no short questionnaires available to measure perceived social support that had been validated for the Dutch population (Evers, *et al.*, 2000). The Loneliness Scale measures both the social components of loneliness (having someone to talk to, having enough people to lean on in times of trouble, having enough people you feel close to) and the emotional components (feeling rejected, missing a close friend, missing the company of others), and has good psychometric properties (Jong-Gierveld and Tilburg, 1999). The Loneliness Scale consists of 11 items from which we calculated the total loneliness score. Because half of the items of the Loneliness Scale refer to perceived social support, we have interpreted a high loneliness score as perceived non-supportiveness and a low loneliness score as perceived social support.

Mastery was measured with the Pearlin Mastery Scale (Pearlin and Schooler, 1978), abbreviated to five items. The concept of mastery refers to individuals' beliefs regarding the extent to which they are able to control or influence outcomes. Responses were rated on a five-point Likert scale, ranging from 1 (not at all) to 5 (always). Summation of the separate items provides the total mastery score, which was selected as independent variable.

Life-events was included as an extra possible prognostic variable (1 = has experienced a major life-event besides the death of the spouse in the past year).

Analyses

Using backward linear regression analysis we examined the influence of putative predictors – (a) age; (b) gender; (c) low education; (d) employment; (e) nationality; (f) number of months being widowed; (g) history of full-blown mental disorder; (h) number of physical disorders; (i) perceived non-supportiveness; (j) mastery; and (k) life-events – on the different outcome measures – (A) depression; (B) anxiety; (C) somatization; (D) complicated or traumatic grief; and (F) quality of life.

Further analyses were performed to explore the possibility of a buffer effect. In order to test whether the presence of the putative protective variables (mastery and perceived social support) reduced the influence of putative risk indicators, several new variables had to be created. First, all continuous predictors were centered (converted to deviation scores so that each continuous predictor has a mean of zero). Subsequently, new variables were created representing the interaction between two variables. By means of backward linear regression analysis, we tested whether the positive predictors could function as a buffer, by neutralizing the adverse effect of the predictors of negative outcome. In the regression analysis, only the interaction terms were gradually removed from the equation, as the main effects have to stay in the model.

Results

Sample characteristics

DEPENDENT VARIABLES

Descriptive statistics of the sample are presented in Table 1. On average, the various measures of psychological adjustment show that the sample of widowed individuals experienced several psychological problems. The average score on the CES-D is above the cut-off of 16, which indicates a possible case of Major Depressive Disorder. In total, 49.8% of the sample had a score higher than 16. Furthermore, the sample had elevated scores on the Anxiety and Somatization subscales of the SCL-90, compared to the normal Dutch population. Complicated grief was not elevated in the sample. The quality of life of the sample was somewhat reduced. The average quality of life of the sample had a value of 0.79, whereas full health has a value of 1.

Table 1. Means and standard deviations of psychological adjustment and predictor variables for 216 widowed persons

VARIABLE	*M*	%	*SD*
DEPENDENT VARIABLES			
Depression	16.72		9.39
Anxiety	13.75		4.46
Somatization	18.24		5.72
Complicated or traumatic grief	59.25		18.79
Quality of life: QALYs	0.79		0.22
INDEPENDENT VARIABLES			
Demographic characteristics			
Age	68.8		9.3
Female gender		63.8	
Low level of education		13.0	
Employed		14.6	
Other than Dutch nationality		5.1	
Duration of widowhood (in months)	7.9		1.9
Health-related variables			
History of full-blown mental disorder		0.9	
Number of physical disorders/disabilities	1.9		1.6
Psycho-social variables			
Perceived non-supportiveness	6.5		3.0
Mastery	21.6		3.8
Life-events			
Has experienced other major life-events		46.7	

INDEPENDENT VARIABLES

The sample consisted of 139 widows (63.8%) and 79 widowers (36.2%). The age of the participants ranged from 50 to 92 years (M = 68.8). Education varied from no education/primary school (13%) to higher education (20.7%), and 14.6% of the sample was employed. Only a small part of the sample (5.1%) were not of Dutch nationality. Duration of widowhood varied from 2 to 14 months (M = 7.9). The number of physical disorders/disabilities ranged from 0 to 7 (M = 1.9).

Perceived non-supportiveness varied from 3 to 11; the mean mastery score of the sample was 21.6. Approximately half of the sample (46.7%) had experienced other major life-events besides the death of their spouse in the past year.

Identification of predictors

We identified seven variables that were associated with psychological problems accompanying widowhood. The combination of risk factors differed slightly for the five outcome measures utilized in this study. Depressive symptomatology was best predicted by: lower age; shorter duration of widowhood; perceived non-supportiveness; more physical illnesses/disabilities; and lower level of

Table 2. Unstandardized regression coefficients of characteristics predicting psychological adjustment in 216 widowed persons

DEPENDENT VARIABLE	PREDICTOR	BETA	SIG.	R^2	ADJUSTED R^2
Depression				0.425	0.411
	Age	−0.132	0.021		
	Duration widowhood	−0.879	0.001		
	Perceived non-supportiveness	0.499	0.006		
	No. of physical disorders	1.105	0.001		
	Mastery	−1.199	0.000		
Anxiety				0.393	0.383
	Female gender	1.225	0.024		
	Age	−0.069	0.010		
	Low level of education	1.950	0.011		
	No. of physical disorders	0.473	0.005		
	Mastery	−0.546	0.000		
Somatization				0.398	0.386
	Female gender	2.023	0.002		
	Low level of education	3.227	0.001		
	No. of physical disorders	1.308	0.000		
	Mastery	−0.468	0.000		
Complicated grief				0.311	0.300
	Age	−0.340	0.006		
	Perceived non-supportiveness	1.005	0.012		
	Mastery	−2.280	0.000		
QALYs				0.407	0.398
	Low level of education	−0.082	0.026		
	No. of physical disorders	−0.054	0.000		
	Mastery	0.022	0.000		

mastery. Together, these variables explained 41% of the variance in depressive symptomatology.

The other outcome measures were for the most part explained by the same risk factors, supplemented by female gender and low level of education. Mastery contributed to all outcome measures. Unstandardized regression coefficients are shown in Table 2. The proportion of variance explained by each combination of predictors varied between 30% (complicated grief) and 40% (quality of life).

Buffer effect

In order to explore whether mastery or perceived social support could function as a buffer by decreasing the impact of the identified risk indicators, we examined their interaction. Results are presented in Table 3. Perceived social support interacted with duration of widowhood on depressive symptomatology ($p < 0.010$) and with age on complicated grief ($p < 0.010$). Mastery interacted with age and the number of physical disorders on anxiety ($p < 0.005$) and

Table 3. Interaction effects of characteristics predicting psychological adjustment in 216 widowed persons

DEPENDENT VARIABLE	PREDICTOR	BETA	SIG.	R^2	ADJUSTED R^2
Depression	*Main effects*			0.412	0.394
	Age	−0.130	0.025		
	Duration widowhood	−0.705	0.009		
	Perceived non-supportiveness	0.462	0.011		
	No. of physical disorders	1.075	0.002		
	Mastery	−1.166	0.000		
	Interaction effect				
	Duration × Support	−0.148	0.097		
Anxiety	*Main effects*			0.437	0.418
	Female gender	1.025	0.048		
	Age	−0.090	0.001		
	Low level of education	1.533	0.030		
	No. of physical disorders	0.591	0.000		
	Mastery	−0.468	0.000		
	Interaction effects				
	Age × Mastery	0.029	0.003		
	Physical disorders × Mastery	−0.123	0.000		
Somatization	*Main effects*			0.421	0.407
	Female gender	1.953	0.003		
	Low level of education	2.416	0.011		
	No. of physical disorders	1.313	0.000		
	Mastery	−0.452	0.000		
	Interaction effect				
	Physical disorders × Mastery	−0.122	0.016		
Complicated Grief	*Main effects*			0.323	0.309
	Age	−0.335	0.005		
	Perceived non-supportiveness	0.948	0.015		
	Mastery	−2.369	0.000		
	Interaction effect				
	Age × Support	−0.063	0.094		
QALYs	*Main effects*			0.441	0.430
	Low level of education	−0.077	0.028		
	No. of physical disorders	−0.053	0.000		
	Mastery	0.021	0.000		
	Interaction effect				
	Physical Disorders × Mastery	0.005	0.006		

with the number of physical disorders on somatization ($p < 0.005$) and quality of life ($p < 0.005$). Besides interacting with other predictor variables, mastery and perceived social support maintained a direct association with the outcome measures.

Discussion

Before we discuss the results of this study, we must first consider its limitations. The first restriction resulted from the study design. Analyses were performed on cross-sectional data, which means that the causality of the detected relations is not determined. Another limitation stems from the initial non-response to the study. Although part of the non-response was presumably caused by individuals not replying because they were in eligible to take part in the study, this is unlikely to explain fully the low response rate. Given the absence of information on those widows and widowers not participating in the study, the representativeness of the sample is not clear. One of the risks of studying a vulnerable population is self-selection of the least vulnerable individuals. The results of this study indicate that this probably also applies, to a certain extent, to our sample, given the high mastery scores (mean 21.6), thereby limiting the generalizability of the results. In a large population study among elderly in the Netherlands ($N = 2153$) mastery was measured with the same instrument. In this study, a mean mastery score of 17.4 was found, which is considerably lower than in our sample. Nevertheless, most of the characteristics of the sample resemble descriptions from other studies. Generalizability of the results is further limited by our selection of the sample. The present study used data from the first measurement of a longitudinal study on the effects of a visiting service. The selection criteria for this longitudinal study imposed restrictions on the sample. Furthermore, the life-event measurement we included in our study did not capture positive life-events. Therefore, we were not able to test whether positive life-events could increase psychological adjustment.

Despite the limitations of this study, its results still contribute to the further understanding of all factors influencing bereavement outcomes. Although we examined five different measures of psychological adjustment, the corresponding sets of predictors displayed a strong resemblance. Furthermore, the predictor variables explained a substantial proportion of the variance in each outcome measure, indicating that our results make a valuable contribution to the identification of the most vulnerable widows and widowers. Moreover, the results are in line with findings from several other studies.

Consistent with several other studies, we found a relationship between gender and psychological adjustment. However, only a few studies have demonstrated more distress in widows (Carey, 1979; Feinson, 1982; Jacobs *et al.*, 1989), as was the case in our study. Most research suggests the opposite. These conflicting results can be explained largely by differences in study design. Studies containing a non-widowed control group indicated that men suffered relatively greater difficulties after the death of a spouse than women. Although widowers did not necessarily experience more distress than widows, a gender difference was caused by the relative magnitude of the widowed to non-widowed ratio (Stroebe *et al.*, 2001). The objective of this study was to identify the most vulnerable within the widowed population, regardless of vulnerabilities preceding the loss. In this way, effective support can be developed and offered to all widowed individuals experiencing serious distress.

Besides gender, we identified another two demographic variables predicting psychological adjustment after bereavement – age and education. Both predictors are moderately grounded by other study reports. In this study, older widows and widowers had worse outcomes than younger widowed individuals. Although some studies suggest a relationship in the opposite direction (Sable, 1991) or a non-linear connection (Fitzpatrick and Van Tran, 2002), this outcome is consistent with most preceding studies reporting an association between age and distress (Carey, 1979; Cotten, 1999; Mendes de Leon *et al.*, 1994). The impact of education on bereavement outcome has been less examined. Not all studies manage to demonstrate a relationship between education and psychological adjustment (Feinson, 1982). However, where an association was found, it was in the same direction as demonstrated in our study (Carey, 1979). Poorly educated widows and widowers experienced more distress.

The other predictors we identified are well founded in the literature. Widowed individuals with a large number of physical disorders or disabilities experienced more psychological distress, which is consistent with several studies (Feinson, 1982; Voyer and Vézina, 1995; Zisook and Shuchter, 1993). Perceived non-supportiveness was related to more distress. This result is also consistent with several preceding study reports (Cotten, 1999; Zisook *et al.*, 1987). Finally, widows and widowers with low mastery or external locus-of-control had worse bereavement outcomes, as was found in some other studies (Cotten, 1999; Landau, 1995; Stroebe and Stroebe, 1993). In addition to the demographic and psychosocial predictors, we also demonstrated a time effect. One of the outcome measures, depressive symptomatology, was predicted by duration of widowhood.

Besides examining the most vulnerable widowed individuals by identifying predictors of bereavement outcome, we explored the possibility of a buffer-effect of mastery and perceived social support. High mastery or internal locus-of-control seemed to offer some protection by reducing the impact of putative risk factors on anxiety, somatization and quality of life. Depressive symptomatology and complicated grief demonstrated an interaction effect between perceived social support and one of identified risk indicators. Although the impact of mastery and perceived social support has to be further examined in longitudinal research, these results are probably of most importance for prevention and clinical practice. Enhancement of mastery in the most fragile widows and widowers will probably be beneficial in several ways, reducing the risk of poor bereavement outcomes directly and indirectly by reducing the impact of other predictors. Therefore, enhancement of mastery should probably be one of the components of effective support for those widowed individuals who are most vulnerable to psychiatric complications. In this respect, it might be useful to consider, for example, control-enhancing interventions (Pinquart and Sörenson, 2001; Schulz, 1976) and reminiscence (Bohlmeijer *et al.*, 2005). The widowed could furthermore benefit from social support, which also appears to influence bereavement outcomes directly and indirectly by neutralizing some of the adverse effects of other predictors. Obviously, these suggestions need to be further examined in future research.

Conflict of interest

None.

Description of authors' roles

S. Onrust collected the data, carried out the statistical analyses and wrote the paper. P. Cuijpers designed the study, supervised the data collection and assisted with writing the paper. F. Smit was responsible for the statistical design and assisted with the statistical analyses. E. Bohlmeijer designed the study and supervised the data collection.

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